



**32-601-1 HEATING, VENTILATION, & AIR CONDITIONING / REFRIGERATION (HVAC/R)**  
**31-601-2 HVAC INSTALLATION TECHNICIAN**  
**30-601-1 REFRIGERATION ESSENTIALS**  
**2023-24 PROGRAM CURRICULUM CHECKLIST**  
**NORTHWOOD TECHNICAL COLLEGE**  
**FALL 2023 START**  
**SUPERIOR**



Name/ID \_\_\_\_\_

Date \_\_\_\_\_

CATALOG NUMBER	COURSE TITLE	HOURS PER WEEK	CREDITS	REFRIGERATION ESSENTIALS TECHNICAL DIPLOMA	HVAC INSTALLATION TECHNICIAN TECHNICAL DIPLOMA <i>(Financial Aid Eligible)</i>	HEATING, VENTILATION, & AIR CONDITIONING / REFRIGERATION (HVAC/R) TECHNICAL DIPLOMA <i>(Financial Aid Eligible)</i>
<b>FIRST TERM (Fall 2023)</b>						
32601300	Air Conditioning Fundamentals Prerequisite: Admission to HVAC/R Plan, Refrigeration Essentials Plan, or HVAC Installation Technician Plan <i>(This course will prepare you to take the NC3/Trane: Residential – Air Flow AND NC3: Building Performance Instruments (BPI) – Indoor Air Quality certifications)</i>	4 hours per week	2 credits	Refrigeration Essentials	HVAC Installation Technician	Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
32601301	Basic Mechanical Fundamentals Prerequisite: Admission to HVAC/R Plan, Refrigeration Essentials Plan, or HVAC Installation Technician Plan <i>(This course will prepare you to take the NC3: Building Performance Instruments (BPI) – Leak Detection certification)</i>	6 hours per week	3 credits	Refrigeration Essentials	HVAC Installation Technician	Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
32601317	Refrigeration Fundamentals Prerequisite: Admission to HVAC/R Plan, Refrigeration Essentials Plan, or HVAC Installation Technician Plan <i>(This course will prepare you to take the Technician EPA Section 608 Certification AND NC3/Trane: Residential – Refrigeration Diagnostics certification)</i>	7 hours per week	3 credits	Refrigeration Essentials	HVAC Installation Technician	Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
32601303	Principles of AC/DC Corequisite: 32804325 Applied Technical Math 1 <i>(This course will prepare you to take the NC3/Snap-On: 575 Multimeter Certification)</i>	6 hours per week	3 credits	Refrigeration Essentials	HVAC Installation Technician	Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
32804325	Applied Technical Math 1	6 hours per week	3 credits	Refrigeration Essentials	HVAC Installation Technician	Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
	<b>FIRST TERM TOTAL</b>	29 hours per week		<b>14 Credits</b> Refrigeration Essentials	<b>14 Credits</b> HVAC Installation Technician	<b>14 Credits</b> Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)

All prerequisite/corequisite courses must be completed with a grade point of 2.0 or better. Revised 6/15/2022



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<b>SECOND TERM (Spring 2024)</b>						
32601304	Heating Systems Prerequisite: Admission to HVAC/R Plan or HVAC Installation Technician Plan <i>(This course will prepare you to take the NC3: Building Performance Instruments (BPI) – Flue Gas Analysis certification)</i>	4 hours per week	2 credits		HVAC Installation Technician	Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
32601305	Electrical Controls & Systems	6 hours per week	3 credits		HVAC Installation Technician	Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
32601306	HVAC/R Print Reading Prerequisite: Admission to HVAC/R Plan or HVAC Installation Technician Plan	4 hours per week	2 credits		HVAC Installation Technician	Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
32601310	Sheet Metal Fabrication Prerequisite: 32601301 Basic Mechanical Fundamentals	4 hours per week	2 credits		HVAC Installation Technician	Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
32804334	Applied Technical Math 2 Prerequisite: 32804325 Applied Technical Math 1	4 hours per week	2 credits		HVAC Installation Technician	Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
32801361	Applied Communications	4 hours per week	2 credits		HVAC Installation Technician	Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
	<b>SECOND TERM TOTAL</b>	26 hours per week			<b>13 Credits</b> HVAC Installation Technician	<b>13 Credits</b> Heating, Ventilation & Air Conditioning / Refrigeration (HVAC/R)

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Revised 6/15/2022



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<b>THIRD TERM (Fall 2024)</b>						
32150302	Applied IT Basics	2 hours per week	1 credit			Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
32601316	Building Automation Systems Prerequisite: 32601305 Electrical Controls and Systems <i>(This course will prepare you to take the NC3/Trane: Building Automation Systems (BAS) 1 – Intro to HVAC Systems and Building Controls certification)</i>	4 hours per week	2 credits			Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
32601307	Heating System Applications Prerequisites: 32601301 Basic Mechanical Fundamentals and 32601304 Heating Systems <i>(This course will prepare you to take the NC3/Trane: Residential Variable Speed Motors, NC3/Trane: Residential – Air-to-Air Heat Pumps AND NC3: Building Performance Instruments (BPI) – Installation &amp; Diagnostics certifications)</i>	6 hours per week	3 credits			Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
32601309	Control Circuit Applications Prerequisite: 32601305 Electrical Controls and Systems	6 hours per week	3 credits			Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
32809380	Applied Interpersonal Skills	4 hours per week	2 credits			Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
32801362	Advanced Communication Skills Prerequisite: 32801361 Applied Communications	4 hours per week	2 credits			Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
	<b>THIRD TERM TOTAL</b>	26 hours per week				<b>13 Credits</b> Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)

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<b>FOURTH TERM (Spring 2025)</b>						
32601308	Electronic Energy Management Prerequisite: 32601309 Control Circuit Applications	6 hours per week	3 credits			Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
32601311	Hydronic Heating Prerequisites: 32601301 Basic Mechanical Fundamentals and 32601304 Heating Systems <i>(This course will prepare you to take the NC3: Building Performance Instruments (BPI) – Fluid Integrity certification)</i>	6 hours per week	3 credits			Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
32601312	Refrigeration Applications Prerequisites: 32601300 Air Conditioning Fundamentals, 32601301 Basic Mechanical Fundamentals and, 32601317 Refrigeration Fundamentals (This course will prepare you to take the ACCA A2L Refrigerant Training certification)	6 hours per week	3 credits			Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
32601314	Heat Load Estimation Prerequisite: Admission to HVAC/R Plan	2 hours per week	1 credit			Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
<b>1st 8 weeks</b>						
32601315	Geothermal Systems Prerequisites: 32601301 Basic Mechanical Fundamentals, 32601317 Refrigeration Fundamentals, 32601305 Electrical Controls and Systems	8 hours per week	2 credits			Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
<b>FOURTH TERM CONTINUED ON NEXT PAGE</b>						



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	<b>FOURTH TERM CONTINUED</b>					
	<b>2nd 8 weeks</b>					
32601313	HVAC/R Electronic Troubleshooting/ Repair (WBL) Prerequisite: 32601309 Control Circuit Applications <i>(This course will prepare you to take the NC3: Building Performance Instruments (BPI) – RPM and Vibration Testing certification)</i>	8 hours per week	2 credits			Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
	<b>FOURTH TERM TOTAL</b>	28 hours per week				<b>14 Credits</b> Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)
	<b>PROGRAM REQUIREMENTS</b>			<b>14 Credits</b> Refrigeration Essentials	<b>27 Credits</b> HVAC Installation Technician	<b>54 Credits</b> Heating, Ventilation, & Air Conditioning / Refrigeration (HVAC/R)

Please be advised that low enrollment class sections may be cancelled. You will be contacted by Student Services with information on other class sections available in alternate formats.

**GRADUATION REQUIREMENTS:** Although your academic advisor can provide guidance, you are ultimately responsible for selecting courses that meet a program's graduation requirements. If you do not take courses in the recommended sequence above, it may delay your completion of graduation requirements. A program plan GPA of 2.0 in a 4.0 grade system is required to graduate.

**EARN CREDIT FOR WHAT YOU ALREADY KNOW:**

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